INTERIOR GIRDER MOMENT TABLE - S.N. 082-0322 - UNIT 1*						
		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3
I_s	(in^4)	68,188	149,228	75,008	149,228	71,685
$I_c(n)$	(in^4)	155,606	166,668	174,587	166,668	165,203
$I_c(3n)$	(in^4)	115,242	166,668	127,817	166,668	121,646
S_s	(in^3)	1,707	3,720	1,977	3,720	1,842
$S_c(n)$	(in^3)	2,371	3,876	2,717	3,876	2,544
$S_c(3n)$	(in^3)	2,142	3,876	2,462	3,876	2,302
S_{xt}	(in^3)	2,174	3,823	2,520	3,822	2,342
DC1	(k/')	1.22	1.41	1.24	1.41	1.23
M_{DC1}	('k)	1,443	4,242	1,507	4,279	1,515
DC2	(k/')	0.26	0.26	0.26	0.26	0.26
M_{DC2}	('k)	229	548	215	537	221
DW	(k/')	0.45	0.45	0.45	0.45	0.45
M_{DW}	('k)	557	1,363	578	1,371	581
$M_{\ell} + IM$	('k)	2,469	3,244	2,632	3,239	2,518
M_u (Strength I)	('k)	7,246	13,709	7,626	13,745	7,448
M_{bl}	('k)	6	18	13	19	6
f_s DC1	(ksi)	10.1	13.7	9.1	13.8	9.9
f_s DC2	(ksi)	1.3	1.7	1.0	1.7	1.2
f_s DW	(ksi)	3.1	4.2	2.8	4.2	3.0
f_s 1.3(M_{ℓ}+IM)	(ksi)	16.2	13.1	15.1	13.0	15.4
f_f	(ksi)	1.7	1.9	3.0	1.9	1.6
f_s (Service II)	(ksi)	30.8	32.7	28.1	32.7	29.5
f_s (Total)(Strength I)	(ksi)	40.8	43.1	37.3	43.2	39.1
F_{cr} (Service II)	(ksi)	47.5	47.5	47.5	47.5	47.5
Vr	(k)	50.7	55.1		57.7	50.9
F_{cr}	(ksi)	50.0	50.0	50.0	50.0	50.0

INTERIOR GIRDER REACTION TABLE - S.N. 082-0322 - UNIT 1*					
		W. Abut.	Pier 1	Pier 2	Pier 3
R_{DC1}	(k)	61.0	249.1	250.5	62.2
R_{DC2}	(k)	9.9	35.9	35.4	9.7
R_{DW}	(k)	22.2	82.5	82.9	22.7
$R_{\ell} + IM$	(k)	99.2	202.6	201.7	101.1
R_{Total}	(k)	192.3	570.1	570.5	195.7

INTERIOR GIRDER MOMENT TABLE - S.N. 082-0322 - UNIT 2*						
		0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.6 Sp. 6
I_s	(in^4)	91,502	159,584	85,719	153,056	85,719
$I_c(n)$	(in^4)	186,957	176,555	157,220	169,394	176,363
$I_c(3n)$	(in^4)	139,548	176,555	119,004	169,394	132,886
S_s	(in^3)	2,232	3,912	2,091	3,644	2,091
$S_c(n)$	(in^3)	2,941	4,057	2,629	3,783	2,721
$S_c(3n)$	(in^3)	2,661	4,057	2,391	3,783	2,488
S_{xt}	(in^3)	2,753	4,013	2,482	3,737	2,544
DC1	(k/')	1.29	1.43	0.93	1.41	1.26
M_{DC1}	('k)	1,706	3,961	1,495	3,977	1,616
DC2	(k/')	0	0	0.26	0	0.26
M_{DC2}	('k)	90	203	206	317	331
DW	(k/')	0.41	0.38	0.37	0.38	0.39
M_{DW}	('k)	595	1,486	706	1,474	632
$M_{\ell} + IM$	('k)	3,311	4,129	2,360	4,227	2,526
M_u (Strength I)	('k)	8,932	14,660	7,315	14,976	7,802
M_{bl}	('k)	5	0	12	0	2
f_s DC1	(ksi)	9.2	12.1	8.6	13.1	9.3
f_s DC2	(ksi)	0.4	0.6	1.0	1.0	1.6
f_s DW	(ksi)	2.7	4.4	3.5	4.7	3.0
f_s 1.3(M_{ℓ}+IM)	(ksi)	17.6	15.9	14.0	17.4	14.5
f_f	(ksi)	1.2	0.0	2.9	0.0	0.4
f_s (Service II)	(ksi)	29.8	33.0	27.2	36.2	28.4
f_s (Total)(Strength I)	(ksi)	39.6	43.9	36.2	48.1	37.7
F_{cr} (Service II)	(ksi)	47.5	47.5	47.5	47.5	47.5
Vr	(k)	146.6	152.4		159.7	114.2
F_{cr}	(ksi)	50.0	50.0	50.0	50.0	50.0

INTERIOR GIRDER REACTION TABLE - S.N. 082-0322 - UNIT 2*					
		Pier 3	Pier 4	Pier 5	Pier 6
R_{DC1}	(k)	67.5	341.9	241.0	65.5
R_{DC2}	(k)	2.2	-0.2	17.4	12.0
R_{DW}	(k)	23.9	117.2	87.6	24.6
$R_{\ell} + IM$	(k)	141.1	266.9	271.0	141.5
R_{Total}	(k)	234.7	725.8	617.0	243.6

* The moments & reactions given are the maximum for interior girders. Forces are typically larger for an exterior girder. Structural design is based on maximum girder forces.

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads (in^4 and in^3).

$I_c(n)$, $S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) due to short-term composite live loads (in^4 and in^3).

$I_c(3n)$, $S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in^4 and in^3).

S_{xt}: Section modulus about the major axis of section to the controlling flange, tension or compression, taken as yield moment with respect to the controlling flange over the yield strength of the controlling flange (in^3).

DC1: Un-factored non-composite dead load (kips/ft.).

M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

$M_{\ell} + IM$: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW}+ 1.75 $M_{\ell} + IM$

M_{bl}: Factored lateral bending moment for controlling flange plate (kip-ft.).

f_f: Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending (kip-ft.).

f_s (Service II): Sum of stresses as computed from the moments below (ksi).
M_{DC1} + M_{DC2} + M_{DW} + 1.3 $M_{\ell} + IM$

f_s (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 $M_{\ell} + IM$

F_{cr} (Service II): Critical flange stress at Service II computed according to Article 6.10.4.2 (ksi).

F_{cr}: Critical flange stress computed according to Article 6.10.7 or 6.10.8 (ksi).

Vr: Maximum factored shear range computed according to Article 6.10.10.

Note:
M_{ℓ} and R_{ℓ} include the effects of centrifugal force and superelevation.

AECOM	USER NAME =	DESIGNED - PJL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	MOMENT AND REACTION TABLES – I I–70E OVER I–55, CSX & KCS RAILROADS
		DRAWN - BRD	REVISED -		
	PLOT SCALE = 012 '/ IN.	CHECKED - CHY	REVISED -		
	PLOT DATE = 6/30/2011	DATE - 07-01-11	REVISED -		SCALE: SHEET S-125 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	252
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		